

The Optical Gravitational Lensing Experiment. OGLE-III Photometric Maps of the Galactic Bulge Fields*

by

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ABSTRACT

We present OGLE-III Photometric Maps of the Galactic bulge fields observed during the third phase of the OGLE project. This paper describes the last, concluding set of maps based on OGLE-III data.

The maps contain precise, calibrated *VI* photometry of about 340 million stars from 267 fields in the Galactic bulge observed during entire OGLE-III phase (2002–2009), covering about 92 square degrees in the sky. Precise astrometry of these objects is also provided.

We briefly discuss the photometry procedures and the quality of the data. We also present sample data and color–magnitude diagrams of the observed fields.

All photometric data are available to the astronomical community from the OGLE Internet archive.

1. Introduction

The Optical Gravitational Lensing Experiment (OGLE) is a long term project (started in 1992) with scientific goals including gravitational microlensing, search for extrasolar planets, variable stars etc. All these goals require regular monitoring of millions of stars in dense stellar fields located in the Galactic center, Magellanic Clouds and selected parts of the Galactic disk. The photometry of all these stars collected during the project lifetime constitutes a unique, huge data set that can be used in many astrophysical applications.

Since the second phase of the project, OGLE-II, we have published precisely calibrated, both photometrically and astrometrically, general *BVI* or *VI* catalogs of objects called OGLE Photometric Maps. These Maps cover the main project targets including the Magellanic Clouds, Galactic disk and the Galactic center.

*Based on observations obtained with the 1.3 m Warsaw telescope at the Las Campanas Observatory of the Carnegie Institution for Science.

The OGLE maps were often used, for example, for modeling the structure of the observed objects (*e.g.*, Rattenbury *et al.* 2007, Subramaniam and Subramanian 2009, Nataf *et al.* 2010), determination of the interstellar extinction (*e.g.*, Udalski *et al.* 2003b, Haschke, Grebel and Duffau 2011) or in many analyzes of microlensing events (*e.g.*, Bennett *et al.* 2010, Abe *et al.* 2004). Also, the maps constitute a huge set of the secondary photometric standards that can be used for calibration of photometry.

This paper presents the OGLE-III Photometric Map of the Galactic bulge, concluding the most recent series of the OGLE Photometric Maps which contain the photometry of objects observed during the third phase of the project. The previous papers of this series have covered the stellar fields in the Large and Small Magellanic Clouds (Udalski *et al.* 2008bc) and the Galactic disk (Szymański *et al.* 2010). The Galactic bulge photometry constitutes the biggest data set in the series, containing almost 340 million stars observed in 267 dense fields of the center of Galaxy covering 92 square degrees.

2. Observations

Observations were carried out at Las Campanas Observatory in Chile, operated by the Carnegie Institution for Science, using the 1.3-m Warsaw Telescope equipped with the eight-chip mosaic CCD camera (Udalski 2003a) covering 35×35 arcmin in the sky with the scale of 0.26 arcsec/pixel.

OGLE-III photometry of the Galactic center contains data obtained in the *V*- and *I*-band filters which are close to the standard *VI* bands. Only for very red objects, $(V - I) > 2$ mag, the data obtained through the OGLE-III glass *I* filter could not be precisely calibrated. This small deficiency has been recently fixed using calibrations based on the first OGLE-IV data, obtained with a new, 32-chip CCD camera equipped with interferometric *I*-band filter which very accurately reproduces the standard *I* pass-band. The details of this procedure will be given in Section 3.

Observations of the Galactic bulge fields consist of 89 175 exposures spanning almost eight years between June 2001 and May 2009. The vast majority of frames (87 787) were obtained in *I*-band. The remaining 1 388 frames were taken in *V* filter in order to collect some color data for the observed stars. This asymmetric strategy proved to be the most effective in terms of search for microlensing phenomena – the main scientific goal of the project – and was adopted in all phases of the experiment. The exposure times of the majority of frames were 120 s for *I*-band and 200 s for *V*-band.

The data were taken only in good seeing and transparency conditions. The seeing limit for Galactic bulge fields was set to $\approx 1''.8$ but it was not automatically enforced so the databases include some frames taken at worse conditions. The median seeing of the *I*-band images is equal to $1''.2$.

Table 1 lists all Galactic bulge fields covered by the OGLE-III Photometric Maps giving their names, equatorial and galactic coordinates, number of frames (I and V) included in the databases, the number of stars detected in I -band and the mean value of $(V - I)$ color. Schematic map of the fields on grids of equatorial and galactic coordinates is shown in Fig. 1. The total area covered by the fields is about 92 square degrees (79 and 13 square degrees south and north of galactic equator, respectively). About 7% of this area, 6.3 square degrees, is covered by the overlapping parts of adjacent fields. This includes both overlaps of the neighboring main fields, resulting from the design of the Galactic bulge pointings (Fig. 1) and overlaps of the subfields of adjacent chips of the mosaic which are possible due to limited accuracy of telescope pointing. We used this opportunity to construct reference images which are bigger than single frames: 2180×4176 vs. 2048×4096 pixels per chip (see Udalski *et al.* 2008a for details), thus covering, at least partly, the gaps between CCD mosaic chips.

The number of frames taken of each field should be considered with caution. This is due to the observational strategy adopted for OGLE-III phase which allowed to switch to a much denser, sometimes even nearly continuous coverage of fields in which extremely interesting microlensing events were detected online through our early warning (EWS and EEWS) systems. For these fields, the total number of frames is not strictly related to their typical observing frequency.

3. Photometric Maps of the Galactic Bulge Fields

3.1. Catalog

The construction of the general catalog – photometric map of the Galactic bulge was done similarly to the procedure applied to other main targets of the OGLE-III observations, the Magellanic Clouds and the Galactic disk. The procedure was detailed in Udalski *et al.* (2008b). Here, we only recall the main features and describe small changes.

The catalog tables were created for every subfield (chip nos. 1–8) separately. This is a logical consequence of the fact that images of each mosaic chip were considered as individual parts of every main field as listed in Table 1. The reference images, reductions and databases were also made separately for every subfield.

As it was mentioned above, about 7% of the total area covered in the Galactic bulge is overlapped by more than one field. Accordingly, a few percent of all objects can be found in more than one subfield catalog. The current, text version of the photometric maps does not provide cross-identification of those objects but we plan to include it in the online version of the database which will be available in near future.

The catalog was constructed based on the I -band databases. Adding the V -band photometry required cross-identification between objects in I and V databases. The matching star in V was chosen to be the closest object in $0''.5$ (1.9 pixel) radius. For

Table 1
OGLE-III fields in Galactic bulge

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V-I \rangle$
BLG100	17 ^h 51 ^m 00 ^s .0	−29°59′48″	359.6961	−1.5504	2393	8	1484138	2.79
BLG101	17 ^h 53 ^m 40 ^s .2	−29°49′52″	0.1331	−1.9643	2418	34	2269274	2.10
BLG102	17 ^h 56 ^m 20 ^s .2	−29°30′51″	0.6991	−2.3049	2540	17	2026597	2.04
BLG103	17 ^h 56 ^m 20 ^s .2	−30°06′22″	0.1865	−2.6018	1393	4	1858589	2.07
BLG104	17 ^h 59 ^m 00 ^s .3	−29°28′17″	1.0264	−2.7867	1304	7	1917899	1.76
BLG105	18 ^h 01 ^m 39 ^s .6	−29°28′12″	1.3138	−3.2882	928	16	1950115	1.73
BLG106	17 ^h 46 ^m 29 ^s .6	−37°09′46″	353.0553	−4.4247	130	3	1160605	1.58
BLG107	17 ^h 49 ^m 22 ^s .6	−37°09′45″	353.3508	−4.9179	128	2	1100541	1.47
BLG108	17 ^h 46 ^m 29 ^s .3	−36°34′09″	353.5649	−4.1178	307	3	1330549	1.72
BLG109	17 ^h 49 ^m 21 ^s .4	−36°34′11″	353.8606	−4.6125	142	3	1156136	1.53
BLG110	17 ^h 52 ^m 13 ^s .4	−36°34′11″	354.1533	−5.1087	127	3	1306752	1.43
BLG111	17 ^h 55 ^m 05 ^s .4	−36°34′11″	354.4427	−5.6070	124	3	1090425	1.43
BLG112	17 ^h 46 ^m 30 ^s .1	−35°59′04″	354.0683	−3.8184	266	3	1158383	1.78
BLG113	17 ^h 49 ^m 19 ^s .8	−35°59′04″	354.3628	−4.3094	246	3	1281475	1.49
BLG114	17 ^h 52 ^m 10 ^s .0	−35°59′04″	354.6549	−4.8038	207	3	1155206	1.35
BLG115	17 ^h 54 ^m 59 ^s .1	−35°58′46″	354.9463	−5.2946	230	3	1204776	1.41
BLG116	17 ^h 46 ^m 28 ^s .9	−35°23′15″	354.5784	−3.5065	208	2	1188410	1.67
BLG117	17 ^h 49 ^m 17 ^s .7	−35°23′16″	354.8735	−3.9985	315	2	1270330	1.52
BLG118	17 ^h 52 ^m 06 ^s .8	−35°23′17″	355.1659	−4.4934	209	3	1335721	1.38
BLG119	17 ^h 54 ^m 55 ^s .7	−35°23′17″	355.4551	−4.9895	250	3	1232697	1.44
BLG120	17 ^h 57 ^m 44 ^s .7	−35°23′17″	355.7413	−5.4878	126	3	1245666	1.40
BLG121	17 ^h 46 ^m 28 ^s .2	−34°47′43″	355.0849	−3.1982	650	5	1736742	1.77
BLG122	17 ^h 49 ^m 17 ^s .3	−34°47′50″	355.3814	−3.6954	942	23	1722815	1.60
BLG123	17 ^h 52 ^m 05 ^s .1	−34°47′52″	355.6737	−4.1900	123	3	1588137	1.41
BLG124	17 ^h 54 ^m 53 ^s .3	−34°47′52″	355.9641	−4.6874	122	2	1429450	1.47
BLG125	17 ^h 57 ^m 40 ^s .1	−34°47′45″	356.2507	−5.1815	123	2	1408780	1.32
BLG126	18 ^h 00 ^m 28 ^s .4	−34°47′45″	356.5351	−5.6830	121	2	1289096	1.27
BLG127	18 ^h 03 ^m 16 ^s .0	−34°47′45″	356.8153	−6.1841	118	2	1073591	1.20
BLG128	18 ^h 06 ^m 03 ^s .9	−34°47′45″	357.0931	−6.6880	116	2	1020448	1.16
BLG129	17 ^h 43 ^m 43 ^s .2	−34°12′11″	355.2961	−2.4063	873	4	1518947	2.09
BLG130	17 ^h 46 ^m 30 ^s .3	−34°12′12″	355.5959	−2.8981	816	5	1580442	1.97
BLG131	17 ^h 49 ^m 17 ^s .3	−34°12′12″	355.8926	−3.3915	645	5	1502103	1.87
BLG132	17 ^h 52 ^m 04 ^s .3	−34°12′14″	356.1858	−3.8870	319	3	1693143	1.71
BLG133	17 ^h 54 ^m 51 ^s .3	−34°12′14″	356.4764	−4.3842	327	3	1714126	1.48
BLG134	17 ^h 57 ^m 38 ^s .2	−34°12′14″	356.7638	−4.8829	326	3	1702292	1.35
BLG135	18 ^h 00 ^m 25 ^s .2	−34°12′14″	357.0484	−5.3838	118	2	1335327	1.39
BLG136	18 ^h 03 ^m 12 ^s .0	−34°12′14″	357.3296	−5.8858	114	2	1176068	1.35
BLG137	18 ^h 05 ^m 59 ^s .0	−34°12′14″	357.6083	−6.3902	112	2	1089365	1.21
BLG138	17 ^h 45 ^m 14 ^s .8	−33°36′41″	355.9667	−2.3677	903	8	1410387	2.27
BLG139	17 ^h 47 ^m 59 ^s .7	−33°36′42″	356.2631	−2.8574	803	6	1411746	2.17
BLG140	17 ^h 50 ^m 44 ^s .7	−33°36′52″	356.5544	−3.3505	629	6	1349063	2.13
BLG141	17 ^h 53 ^m 29 ^s .9	−33°36′47″	356.8467	−3.8439	619	5	1503940	1.89
BLG142	17 ^h 56 ^m 15 ^s .2	−33°37′03″	357.1312	−4.3424	685	6	1597926	1.60
BLG143	17 ^h 59 ^m 00 ^s .2	−33°37′03″	357.4160	−4.8396	118	2	1366023	1.56

Table 1

Continued

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V - I \rangle$
BLG144	18 ^h 01 ^m 44 ^s .6	−33°36′46″	357.7011	−5.3344	119	2	1261419	1.50
BLG145	18 ^h 04 ^m 29 ^s .6	−33°36′45″	357.9805	−5.8349	118	2	1176674	1.33
BLG146	18 ^h 07 ^m 14 ^s .5	−33°36′46″	358.2563	−6.3371	116	2	1056951	1.23
BLG147	17 ^h 49 ^m 45 ^s .0	−33°01′31″	356.9554	−2.8709	798	5	1608385	2.27
BLG148	17 ^h 52 ^m 36 ^s .3	−33°01′32″	357.2603	−3.3861	797	14	1660863	1.98
BLG149	17 ^h 55 ^m 15 ^s .2	−33°01′33″	357.5402	−3.8657	669	19	1301727	1.84
BLG150	17 ^h 58 ^m 00 ^s .3	−33°01′33″	357.8285	−4.3657	316	6	1485986	1.75
BLG151	18 ^h 00 ^m 45 ^s .3	−33°01′31″	358.1142	−4.8669	116	2	1381823	1.66
BLG152	18 ^h 03 ^m 28 ^s .9	−33°01′14″	358.3982	−5.3635	114	2	1322100	1.51
BLG153	18 ^h 06 ^m 15 ^s .4	−33°01′31″	358.6761	−5.8753	112	2	1202493	1.38
BLG154	18 ^h 09 ^m 00 ^s .4	−33°01′31″	358.9527	−6.3818	115	2	1040092	1.28
BLG155	17 ^h 52 ^m 17 ^s .6	−32°25′59″	357.7386	−3.0292	833	5	1776618	2.16
BLG156	17 ^h 55 ^m 00 ^s .6	−32°26′00″	358.0281	−3.5242	829	5	1831359	1.96
BLG157	17 ^h 57 ^m 43 ^s .8	−32°26′00″	358.3155	−4.0214	940	17	1596728	1.81
BLG158	18 ^h 00 ^m 26 ^s .7	−32°26′02″	358.5989	−4.5197	338	3	1468191	1.68
BLG159	18 ^h 03 ^m 09 ^s .8	−32°26′01″	358.8807	−5.0198	116	2	1277414	1.55
BLG160	18 ^h 05 ^m 52 ^s .9	−32°26′01″	359.1595	−5.5218	208	2	1144288	1.51
BLG161	18 ^h 08 ^m 35 ^s .8	−32°26′00″	359.4354	−6.0246	114	3	1018260	1.41
BLG162	18 ^h 11 ^m 18 ^s .7	−32°26′00″	359.7083	−6.5291	113	2	1007827	1.35
BLG163	17 ^h 52 ^m 44 ^s .6	−31°50′13″	358.3014	−2.8090	774	4	1471605	2.33
BLG164	17 ^h 55 ^m 26 ^s .6	−31°50′12″	358.5912	−3.3041	766	4	1752969	1.94
BLG165	17 ^h 58 ^m 08 ^s .5	−31°50′13″	358.8776	−3.8008	382	6	1693738	2.04
BLG166	18 ^h 00 ^m 50 ^s .6	−31°50′14″	359.1616	−4.2998	326	4	1785605	1.67
BLG167	18 ^h 03 ^m 32 ^s .6	−31°50′15″	359.4427	−4.8001	360	2	1502055	1.56
BLG168	18 ^h 06 ^m 14 ^s .6	−31°50′17″	359.7208	−5.3022	112	2	1393456	1.41
BLG169	18 ^h 08 ^m 56 ^s .5	−31°50′19″	359.9961	−5.8055	113	3	1106519	1.40
BLG170	18 ^h 11 ^m 38 ^s .5	−31°50′18″	0.2696	−6.3104	110	3	1129678	1.30
BLG171	17 ^h 52 ^m 44 ^s .1	−31°14′47″	358.8100	−2.5080	927	5	1562062	2.42
BLG172	17 ^h 55 ^m 25 ^s .0	−31°14′47″	359.0997	−3.0028	1406	6	1797708	1.97
BLG173	17 ^h 58 ^m 06 ^s .0	−31°14′48″	359.3865	−3.4997	786	5	1580697	2.03
BLG174	18 ^h 00 ^m 46 ^s .9	−31°14′48″	359.6707	−3.9978	344	2	1651630	1.85
BLG175	18 ^h 03 ^m 27 ^s .8	−31°14′48″	359.9522	−4.4975	384	3	1477697	1.72
BLG176	18 ^h 06 ^m 08 ^s .9	−31°14′48″	0.2313	−4.9995	355	2	1405589	1.56
BLG177	18 ^h 08 ^m 49 ^s .7	−31°14′49″	0.5071	−5.5022	115	3	1326372	1.39
BLG178	18 ^h 11 ^m 32 ^s .2	−31°14′55″	0.7819	−6.0124	114	3	1192805	1.33
BLG179	17 ^h 50 ^m 00 ^s .0	−30°39′17″	359.0200	−1.7019	1428	3	1110253	2.86
BLG180	17 ^h 52 ^m 39 ^s .8	−30°39′20″	359.3117	−2.1949	1463	9	1761449	2.41
BLG181	17 ^h 55 ^m 19 ^s .7	−30°39′18″	359.6020	−2.6892	1303	5	1727735	2.11
BLG182	17 ^h 58 ^m 00 ^s .1	−30°39′17″	359.8903	−3.1869	1433	8	1501630	2.12
BLG183	18 ^h 00 ^m 39 ^s .6	−30°39′17″	0.1741	−3.6835	803	5	1664547	1.82
BLG184	18 ^h 03 ^m 18 ^s .0	−30°39′19″	0.4528	−4.1785	768	5	1611072	1.77
BLG185	18 ^h 06 ^m 00 ^s .6	−30°39′19″	0.7367	−4.6880	821	4	1685043	1.64
BLG186	18 ^h 08 ^m 39 ^s .7	−30°39′16″	1.0127	−5.1876	111	4	1377094	1.45
BLG187	18 ^h 11 ^m 19 ^s .8	−30°39′14″	1.2876	−5.6920	107	2	1281754	1.27
BLG188	17 ^h 59 ^m 00 ^s .2	−30°03′59″	0.5091	−3.0819	814	8	1917577	1.81

Table 1

Continued

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V-I \rangle$
BLG189	18 ^h 01 ^m 39 ^s .1	−30°03′57″	0.7932	−3.5798	776	12	1890245	1.59
BLG190	18 ^h 04 ^m 28 ^s .1	−30°03′56″	1.0922	−4.1112	1003	15	1685701	1.48
BLG191	18 ^h 07 ^m 07 ^s .0	−30°03′56″	1.3705	−4.6125	110	3	1537932	1.51
BLG192	18 ^h 09 ^m 45 ^s .9	−30°03′56″	1.6463	−5.1153	108	2	1416159	1.42
BLG193	18 ^h 12 ^m 25 ^s .0	−30°03′57″	1.9196	−5.6204	194	2	1368305	1.28
BLG194	17 ^h 50 ^m 59 ^s .8	−29°24′27″	0.2022	−1.2486	1379	11	1114100	2.62
BLG195	17 ^h 53 ^m 38 ^s .4	−29°14′20″	0.6407	−1.6588	1354	8	1937546	2.33
BLG196	18 ^h 04 ^m 27 ^s .3	−29°28′06″	1.6137	−3.8178	1298	14	1833526	1.54
BLG197	18 ^h 07 ^m 04 ^s .3	−29°28′22″	1.8867	−4.3181	915	6	1659192	1.52
BLG198	18 ^h 09 ^m 42 ^s .3	−29°28′22″	2.1628	−4.8208	766	5	1573823	1.40
BLG199	18 ^h 12 ^m 20 ^s .3	−29°28′22″	2.4365	−5.3250	114	3	1530714	1.28
BLG200	17 ^h 26 ^m 59 ^s .7	−39°54′52″	348.6826	−2.6778	117	2	887388	1.88
BLG201	17 ^h 27 ^m 00 ^s .1	−39°19′30″	349.1736	−2.3510	114	2	908803	2.13
BLG202	17 ^h 29 ^m 58 ^s .6	−39°54′58″	348.9976	−3.1552	111	2	831860	1.89
BLG203	17 ^h 29 ^m 59 ^s .1	−39°19′30″	349.4930	−2.8317	111	3	854256	2.05
BLG204	18 ^h 14 ^m 59 ^s .9	−29°28′21″	2.7107	−5.8355	110	3	1397880	1.18
BLG205	17 ^h 57 ^m 16 ^s .4	−28°53′10″	1.3456	−2.1672	1394	34	2275476	2.05
BLG206	17 ^h 59 ^m 52 ^s .8	−28°53′00″	1.6324	−2.6606	1363	18	2183459	1.62
BLG207	18 ^h 02 ^m 33 ^s .4	−28°52′58″	1.9223	−3.1700	1120	19	2002261	1.57
BLG208	18 ^h 05 ^m 08 ^s .4	−28°53′00″	2.1987	−3.6636	1399	41	1894677	1.52
BLG209	18 ^h 07 ^m 43 ^s .9	−28°53′00″	2.4741	−4.1600	108	4	1748973	1.50
BLG210	18 ^h 10 ^m 22 ^s .1	−28°53′00″	2.7518	−4.6664	23	2	1409499	1.43
BLG211	18 ^h 12 ^m 59 ^s .1	−28°53′00″	3.0250	−5.1704	22	2	1237744	1.30
BLG212	18 ^h 15 ^m 36 ^s .6	−28°52′58″	3.2972	−5.6771	102	3	1420104	1.25
BLG213	18 ^h 18 ^m 13 ^s .1	−28°53′00″	3.5644	−6.1825	20	4	1073979	1.25
BLG214	17 ^h 57 ^m 32 ^s .6	−28°17′25″	1.8915	−1.9205	1206	8	1862536	2.28
BLG215	18 ^h 00 ^m 09 ^s .7	−28°17′26″	2.1784	−2.4206	1082	8	1974275	1.86
BLG216	18 ^h 02 ^m 44 ^s .5	−28°17′29″	2.4582	−2.9150	1044	6	2010062	1.63
BLG217	18 ^h 05 ^m 19 ^s .6	−28°17′27″	2.7373	−3.4111	821	10	1921363	1.56
BLG218	18 ^h 07 ^m 55 ^s .4	−28°17′28″	3.0146	−3.9113	678	5	1713709	1.65
BLG219	18 ^h 10 ^m 30 ^s .1	−28°17′32″	3.2868	−4.4098	777	5	1647078	1.48
BLG220	18 ^h 13 ^m 06 ^s .0	−28°17′32″	3.5598	−4.9129	200	3	1717223	1.27
BLG221	18 ^h 15 ^m 42 ^s .1	−28°17′32″	3.8308	−5.4180	115	3	1557697	1.20
BLG222	18 ^h 18 ^m 18 ^s .0	−28°17′30″	4.0997	−5.9236	116	4	1347613	1.23
BLG223	17 ^h 59 ^m 19 ^s .7	−27°41′56″	2.6011	−1.9671	1323	30	1692197	2.28
BLG224	18 ^h 01 ^m 55 ^s .2	−27°41′56″	2.8853	−2.4656	1033	6	1916029	1.90
BLG225	18 ^h 04 ^m 30 ^s .2	−27°41′58″	3.1657	−2.9641	825	6	2159774	1.65
BLG226	18 ^h 07 ^m 05 ^s .4	−27°41′59″	3.4443	−3.4645	847	6	2078177	1.51
BLG227	18 ^h 09 ^m 39 ^s .6	−27°41′59″	3.7191	−3.9629	787	4	1986367	1.49
BLG228	18 ^h 12 ^m 15 ^s .1	−27°42′00″	3.9937	−4.4670	18	3	1314414	1.33
BLG229	18 ^h 14 ^m 50 ^s .1	−27°42′00″	4.2653	−4.9707	18	3	1159502	1.20
BLG230	18 ^h 17 ^m 25 ^s .1	−27°42′00″	4.5347	−5.4757	17	2	1179505	1.26
BLG231	18 ^h 20 ^m 00 ^s .1	−27°42′00″	4.8019	−5.9820	17	5	1052213	1.32
BLG232	17 ^h 59 ^m 59 ^s .7	−27°06′25″	3.1886	−1.8015	745	4	1557796	2.42
BLG233	18 ^h 02 ^m 37 ^s .0	−27°06′24″	3.4774	−2.3085	623	3	1739011	2.31

Table 1

Continued

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V-I \rangle$
BLG234	18 ^h 05 ^m 12 ^s .1	−27°06′25″	3.7592	−2.8102	640	5	1981513	1.66
BLG235	18 ^h 07 ^m 47 ^s .1	−27°06′26″	4.0386	−3.3128	685	20	1823097	1.65
BLG236	18 ^h 10 ^m 20 ^s .1	−27°06′28″	4.3118	−3.8105	300	2	1772717	1.71
BLG237	18 ^h 12 ^m 55 ^s .2	−27°06′29″	4.5867	−4.3162	105	7	1642632	1.40
BLG238	18 ^h 15 ^m 29 ^s .7	−27°06′29″	4.8586	−4.8211	106	6	1553326	1.33
BLG239	18 ^h 18 ^m 05 ^s .1	−27°06′30″	5.1296	−5.3303	15	2	1093822	1.35
BLG240	18 ^h 20 ^m 39 ^s .8	−27°06′30″	5.3975	−5.8384	14	2	975542	1.39
BLG241	18 ^h 06 ^m 02 ^s .2	−26°30′52″	4.3681	−2.6842	790	13	1633314	1.97
BLG242	18 ^h 08 ^m 36 ^s .3	−26°30′53″	4.6467	−3.1869	564	5	1882684	1.84
BLG243	18 ^h 11 ^m 10 ^s .3	−26°30′55″	4.9226	−3.6907	187	3	1503175	1.66
BLG244	18 ^h 13 ^m 44 ^s .4	−26°30′56″	5.1967	−4.1959	171	4	1440633	1.52
BLG245	18 ^h 16 ^m 18 ^s .5	−26°30′56″	5.4689	−4.7024	15	3	1126469	1.44
BLG246	18 ^h 18 ^m 49 ^s .0	−26°30′59″	5.7319	−5.1986	104	3	1350870	1.42
BLG247	18 ^h 21 ^m 24 ^s .1	−26°31′00″	6.0014	−5.7109	14	2	853708	1.46
BLG248	18 ^h 23 ^m 58 ^s .1	−26°30′59″	6.2673	−6.2205	103	2	1092107	1.28
BLG249	18 ^h 06 ^m 00 ^s .2	−25°55′18″	4.8827	−2.3890	588	5	1477672	2.30
BLG250	18 ^h 08 ^m 32 ^s .6	−25°55′26″	5.1581	−2.8895	509	4	1723868	1.92
BLG251	18 ^h 11 ^m 07 ^s .5	−25°55′27″	5.4376	−3.3985	551	4	1553925	1.72
BLG252	18 ^h 13 ^m 39 ^s .1	−25°55′20″	5.7108	−3.8968	259	2	1405414	1.67
BLG253	18 ^h 16 ^m 11 ^s .9	−25°55′21″	5.9822	−4.4015	108	2	1459393	1.45
BLG254	18 ^h 18 ^m 45 ^s .0	−25°55′21″	6.2522	−4.9082	108	9	1342950	1.42
BLG255	18 ^h 21 ^m 18 ^s .7	−25°55′30″	6.5190	−5.4192	108	2	1158691	1.49
BLG256	18 ^h 23 ^m 51 ^s .6	−25°55′31″	6.7843	−5.9277	103	2	1101295	1.41
BLG257	18 ^h 08 ^m 30 ^s .0	−25°19′48″	5.6739	−2.5939	109	2	1485247	2.12
BLG258	18 ^h 11 ^m 01 ^s .8	−25°19′49″	5.9493	−3.0950	107	2	1487206	2.03
BLG259	18 ^h 13 ^m 33 ^s .8	−25°19′49″	6.2232	−3.5979	105	2	1331882	1.92
BLG260	18 ^h 16 ^m 06 ^s .1	−25°20′00″	6.4929	−4.1045	99	3	1499790	1.64
BLG261	18 ^h 18 ^m 38 ^s .1	−25°20′00″	6.7627	−4.6098	100	2	1368037	1.44
BLG262	18 ^h 21 ^m 09 ^s .9	−25°19′59″	7.0303	−5.1154	97	2	1218733	1.38
BLG263	18 ^h 23 ^m 41 ^s .7	−25°20′00″	7.2955	−5.6225	99	5	1171702	1.41
BLG264	18 ^h 26 ^m 13 ^s .7	−25°20′00″	7.5593	−6.1312	98	3	915042	1.40
BLG265	18 ^h 14 ^m 29 ^s .4	−24°44′27″	6.8428	−3.5025	106	4	1329570	1.86
BLG266	18 ^h 17 ^m 01 ^s .4	−24°44′27″	7.1154	−4.0093	102	5	1324518	1.72
BLG267	18 ^h 19 ^m 34 ^s .1	−24°44′30″	7.3865	−4.5200	21	4	886425	1.53
BLG268	18 ^h 22 ^m 06 ^s .1	−24°44′30″	7.6551	−5.0291	22	4	878867	1.46
BLG269	18 ^h 24 ^m 38 ^s .1	−24°44′30″	7.9217	−5.5394	23	4	973815	1.41
BLG270	18 ^h 27 ^m 10 ^s .1	−24°44′30″	8.1864	−6.0507	22	13	877532	1.43
BLG271	18 ^h 29 ^m 42 ^s .1	−24°44′30″	8.4493	−6.5632	20	3	675396	1.37
BLG272	18 ^h 16 ^m 00 ^s .1	−24°09′00″	7.5274	−3.5254	21	3	1039961	1.87
BLG273	18 ^h 18 ^m 31 ^s .1	−24°09′00″	7.7985	−4.0318	21	5	1096212	1.55
BLG274	18 ^h 21 ^m 02 ^s .1	−24°09′00″	8.0677	−4.5393	20	3	990320	1.49
BLG275	18 ^h 23 ^m 33 ^s .1	−24°09′00″	8.3349	−5.0479	20	5	847642	1.53
BLG276	18 ^h 26 ^m 04 ^s .1	−24°09′00″	8.6003	−5.5575	23	4	762870	1.52
BLG277	18 ^h 28 ^m 35 ^s .1	−24°09′00″	8.8638	−6.0683	22	5	733393	1.54
BLG278	18 ^h 31 ^m 04 ^s .9	−24°08′58″	9.1240	−6.5758	100	2	756314	1.49

Table 1

Continued

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V - I \rangle$
BLG279	18 ^h 16 ^m 00 ^s .1	−23°33′30″	8.0495	−3.2454	20	4	1011305	1.81
BLG280	18 ^h 18 ^m 30 ^s .1	−23°33′30″	8.3203	−3.7505	19	4	989315	1.68
BLG281	18 ^h 21 ^m 00 ^s .1	−23°33′30″	8.5891	−4.2568	19	3	949372	1.54
BLG282	18 ^h 23 ^m 30 ^s .1	−23°33′30″	8.8561	−4.7641	17	3	800872	1.60
BLG283	18 ^h 26 ^m 00 ^s .1	−23°33′30″	9.1213	−5.2725	18	5	749195	1.51
BLG284	18 ^h 28 ^m 30 ^s .1	−23°33′30″	9.3847	−5.7819	18	3	657775	1.52
BLG285	18 ^h 31 ^m 00 ^s .1	−23°33′30″	9.6463	−6.2923	18	3	603916	1.47
BLG286	18 ^h 16 ^m 00 ^s .1	−22°58′00″	8.5713	−2.9651	17	4	915277	1.99
BLG287	18 ^h 18 ^m 30 ^s .1	−22°58′00″	8.8435	−3.4723	16	4	911160	1.81
BLG288	18 ^h 21 ^m 00 ^s .1	−22°58′00″	9.1138	−3.9807	16	4	881015	1.66
BLG289	18 ^h 23 ^m 30 ^s .1	−22°58′00″	9.3822	−4.4901	18	4	898691	1.57
BLG290	18 ^h 26 ^m 00 ^s .1	−22°58′00″	9.6489	−5.0005	14	3	788157	1.54
BLG291	18 ^h 28 ^m 30 ^s .1	−22°58′00″	9.9138	−5.5120	14	5	672798	1.49
BLG292	18 ^h 31 ^m 00 ^s .1	−22°58′00″	10.1769	−6.0244	15	5	614425	1.43
BLG293	18 ^h 16 ^m 00 ^s .1	−22°22′30″	9.0929	−2.6845	16	11	1040978	2.19
BLG294	18 ^h 18 ^m 29 ^s .1	−22°22′30″	9.3646	−3.1905	16	3	1021042	1.91
BLG295	18 ^h 20 ^m 58 ^s .1	−22°22′30″	9.6345	−3.6974	17	3	951091	1.78
BLG296	18 ^h 23 ^m 27 ^s .1	−22°22′30″	9.9026	−4.2054	15	5	936343	1.64
BLG297	18 ^h 25 ^m 56 ^s .1	−22°22′30″	10.1689	−4.7144	15	4	869260	1.45
BLG298	18 ^h 28 ^m 25 ^s .1	−22°22′30″	10.4335	−5.2244	13	3	838656	1.30
BLG299	18 ^h 30 ^m 54 ^s .1	−22°22′30″	10.6964	−5.7354	14	3	726365	1.34
BLG300	18 ^h 17 ^m 00 ^s .1	−21°47′00″	9.7244	−2.6082	17	3	1007743	2.00
BLG301	18 ^h 19 ^m 28 ^s .1	−21°47′00″	9.9948	−3.1131	17	3	892601	1.96
BLG302	18 ^h 21 ^m 56 ^s .1	−21°47′00″	10.2635	−3.6190	18	4	882631	1.95
BLG303	18 ^h 24 ^m 24 ^s .1	−21°47′00″	10.5305	−4.1260	17	5	934256	1.63
BLG304	18 ^h 26 ^m 52 ^s .1	−21°47′00″	10.7957	−4.6339	15	6	763531	1.56
BLG305	18 ^h 29 ^m 19 ^s .8	−21°47′00″	11.0588	−5.1417	16	5	694849	1.39
BLG306	18 ^h 31 ^m 48 ^s .1	−21°47′00″	11.3213	−5.6525	16	6	720132	1.42
BLG307	18 ^h 23 ^m 10 ^s .1	−21°11′30″	10.9220	−3.5970	18	3	780694	1.86
BLG308	18 ^h 25 ^m 38 ^s .1	−21°11′30″	11.1894	−4.1063	16	3	666080	1.75
BLG309	18 ^h 28 ^m 06 ^s .1	−21°11′30″	11.4552	−4.6166	16	4	655837	1.63
BLG310	18 ^h 30 ^m 34 ^s .1	−21°11′30″	11.7194	−5.1278	17	4	626459	1.64
BLG311	18 ^h 33 ^m 02 ^s .1	−21°11′30″	11.9820	−5.6399	17	4	568079	1.46
BLG312	18 ^h 24 ^m 39 ^s .8	−20°36′00″	11.6095	−3.6311	20	4	814800	1.89
BLG313	18 ^h 27 ^m 07 ^s .1	−20°36′00″	11.8760	−4.1404	19	4	682459	1.86
BLG314	18 ^h 33 ^m 00 ^s .1	−20°36′00″	12.5082	−5.3646	19	4	608451	1.49
BLG315	17 ^h 52 ^m 16 ^s .1	−37°10′00″	353.6398	−5.4169	19	2	797278	1.46
BLG316	17 ^h 45 ^m 00 ^s .1	−37°45′30″	352.3905	−4.4789	19	2	710766	1.80
BLG317	17 ^h 47 ^m 54 ^s .1	−37°45′30″	352.6865	−4.9703	18	2	734776	1.56
BLG318	17 ^h 50 ^m 47 ^s .9	−37°45′21″	352.9810	−5.4620	123	2	955689	1.47
BLG319	17 ^h 47 ^m 30 ^s .1	−38°21′00″	352.1357	−5.2054	19	2	756243	1.51
BLG320	17 ^h 50 ^m 26 ^s .1	−38°21′00″	352.4295	−5.7005	19	3	769101	1.40
BLG321	17 ^h 53 ^m 22 ^s .1	−38°21′00″	352.7199	−6.1979	20	3	636272	1.38
BLG322	17 ^h 46 ^m 00 ^s .1	−38°56′30″	351.4748	−5.2575	20	4	734816	1.54
BLG323	17 ^h 48 ^m 57 ^s .1	−38°56′30″	351.7694	−5.7506	20	3	706144	1.35

Table 1

Concluded

Field	RA	Dec (J2000)	l_{II}	b_{II}	Nfr _I	Nfr _V	Nobj	$\langle V - I \rangle$
BLG324	17 ^h 51 ^m 54 ^s .1	−38°56′30″	352.0604	−6.2458	19	3	603439	1.36
BLG325	17 ^h 38 ^m 30 ^s .1	−39°32′00″	350.2073	−4.3283	22	3	570310	1.65
BLG326	17 ^h 41 ^m 29 ^s .1	−39°32′00″	350.5114	−4.8171	20	4	570484	1.62
BLG327	17 ^h 44 ^m 28 ^s .1	−39°32′00″	350.8120	−5.3083	20	3	566849	1.51
BLG328	17 ^h 47 ^m 27 ^s .1	−39°32′00″	351.1089	−5.8018	20	3	556223	1.36
BLG329	17 ^h 50 ^m 26 ^s .1	−39°32′00″	351.4022	−6.2976	19	2	540815	1.32
BLG330	17 ^h 28 ^m 00 ^s .1	−29°30′00″	357.4584	2.9392	113	3	1489220	2.31
BLG331	17 ^h 24 ^m 50 ^s .1	−29°20′00″	357.2127	3.6048	110	15	1514420	2.12
BLG332	17 ^h 10 ^m 00 ^s .5	−32°59′50″	352.3810	4.0909	111	5	1015348	1.64
BLG333	17 ^h 35 ^m 30 ^s .1	−27°10′01″	0.3176	2.8305	359	6	1270794	2.61
BLG334	17 ^h 41 ^m 40 ^s .2	−24°59′53″	2.8940	2.8132	107	7	1338590	2.57
BLG335	17 ^h 34 ^m 32 ^s .9	−22°29′56″	4.1485	5.5217	115	7	1007985	1.84
BLG336	17 ^h 37 ^m 02 ^s .0	−22°29′58″	4.4558	5.0361	114	6	1040076	1.97
BLG337	17 ^h 39 ^m 31 ^s .0	−22°29′58″	4.7608	4.5497	116	13	1087002	2.04
BLG338	17 ^h 42 ^m 00 ^s .0	−22°29′59″	5.0632	4.0618	113	6	1219047	1.98
BLG339	17 ^h 47 ^m 00 ^s .0	−22°29′59″	5.6653	3.0756	412	3	1261835	1.98
BLG340	17 ^h 49 ^m 30 ^s .2	−22°29′54″	5.9644	2.5806	314	3	1185439	2.25
BLG341	17 ^h 51 ^m 57 ^s .9	−22°29′59″	6.2539	2.0911	109	5	1260449	2.38
BLG342	17 ^h 46 ^m 29 ^s .7	−23°05′22″	5.0996	2.8703	325	3	1372416	1.92
BLG343	17 ^h 48 ^m 59 ^s .8	−23°05′21″	5.3969	2.3775	318	3	1295253	2.15
BLG344	17 ^h 43 ^m 30 ^s .3	−23°40′55″	4.2355	3.1480	251	3	1503135	2.04
BLG345	17 ^h 46 ^m 00 ^s .4	−23°40′56″	4.5339	2.6589	109	2	1458394	2.06
BLG346	17 ^h 42 ^m 00 ^s .3	−24°16′29″	3.5501	3.1290	332	3	1457492	2.15
BLG347	17 ^h 44 ^m 31 ^s .3	−24°16′25″	3.8517	2.6410	314	3	1400744	2.23
BLG348	17 ^h 44 ^m 30 ^s .2	−20°04′55″	7.4377	4.8242	114	2	1001745	1.68
BLG349	17 ^h 45 ^m 31 ^s .2	−19°29′30″	8.0689	4.9247	108	2	896882	1.71
BLG350	17 ^h 47 ^m 50 ^s .2	−21°00′00″	7.0531	3.6820	109	2	1138004	1.91
BLG351	17 ^h 43 ^m 20 ^s .2	−21°29′50″	6.0825	4.3217	103	2	1166359	1.80
BLG352	17 ^h 39 ^m 20 ^s .2	−21°04′56″	5.9472	5.3327	183	2	1055393	1.64
BLG353	17 ^h 49 ^m 30 ^s .2	−17°39′59″	10.1278	5.0490	101	6	767562	1.59
BLG354	17 ^h 35 ^m 01 ^s .4	−23°34′58″	3.2886	4.8483	307	3	1132575	2.09
BLG355	17 ^h 26 ^m 00 ^s .2	−25°24′56″	0.6228	5.5703	107	10	1040564	1.86
BLG356	17 ^h 25 ^m 00 ^s .1	−27°44′51″	358.5517	4.4605	106	6	1181464	2.09
BLG357	17 ^h 23 ^m 50 ^s .3	−25°59′52″	359.8641	5.6521	105	3	1067907	1.69
BLG358	17 ^h 18 ^m 59 ^s .8	−29°00′05″	356.7655	4.8440	133	7	1297380	1.74
BLG359	17 ^h 16 ^m 23 ^s .1	−29°00′00″	356.4383	5.3130	21	5	1026221	1.65
BLG360	17 ^h 13 ^m 45 ^s .5	−29°00′06″	356.1036	5.7808	111	17	1010778	1.55
BLG361	17 ^h 19 ^m 00 ^s .1	−29°35′30″	356.2797	4.5064	19	7	988799	1.95
BLG362	17 ^h 16 ^m 22 ^s .1	−29°35′30″	355.9504	4.9754	20	6	1046220	1.79
BLG363	17 ^h 13 ^m 43 ^s .5	−29°35′34″	355.6157	5.4436	112	11	1131273	1.60
BLG364	17 ^h 13 ^m 40 ^s .1	−32°00′03″	353.6439	4.0516	112	13	1095239	1.80
BLG365	17 ^h 09 ^m 30 ^s .0	−32°00′02″	353.1234	4.7669	113	12	964653	1.58
BLG366	17 ^h 06 ^m 29 ^s .9	−32°44′57″	352.1412	4.8308	115	11	911721	1.51

objects identified in more than one (overlapping) subfield we were able to construct single V data sets of independent measurements for each star.

The data in the catalog tables include: star ID (column 1); equatorial coordinates J2000.0 (2,3); X, Y pixel coordinates in the I -band reference image (4,5); photometry data V , $V - I$ and I (6,7,8), V -band photometry parameters: number of points used for mean magnitude (9), number of 5σ -rejected points (10) and standard deviation σ (11); I -band photometry parameters, same as for V (12, 13, 14). Values of 9.999 and 99.999 mark no data available in the given column. Values prefixed with plus sign in column (10) indicate multiple V -band cross-identification. Table 2 presents a sample of catalog table for field BLG100.1.

The mean photometry was derived for all objects with minimum of 1 and 6 observations in the V and I -band, respectively, by averaging all observations after removing 5σ deviating points. The limit for V is so low because of the small overall number of V -band observations in bulge fields. In the case of stars that had been identified in V -band on more than one subfield, all V observations formed a single data set and then were averaged because they are independent measurements. Finally, the color term correction was applied for each object to its database average magnitude according to the transformation equations and color term coefficients presented in Udalski *et al.* (2008a). The $(V - I)$ color derived from the database I and V values was converted to the standard system using $(V - I) = (v - i)/(1 - \epsilon_V + \epsilon_I)$ formula. Then, V and I magnitudes were adjusted by adding $\epsilon_{V,I} \cdot (V - I)$ term to the database value. For objects that do not have color information the average $(V - I)$ of the field was used for color correction of respective I or V magnitude. For other OGLE-III targets (Magellanic Clouds, Galactic disk) the mean value for the whole population was used but for the Galactic bulge the differences in mean $(V - I)$ are so big (see Table 1) that we decided to use proper mean values for each field. The “database” values mentioned here are the instrumental magnitudes corrected for subtle effects discussed in detail by Udalski *et al.* (2008a).

The catalog includes all objects which are present in the I -band databases. With the additional criteria for the quality of the photometry, described above, a small number of objects (less than 2%) entered the catalog with no photometry given, marked by 99.999 values in both I - and V -bands. For the sake of simplicity and to keep the star IDs consistent with the databases, we have not removed these objects from the catalog.

The astrometry was done in the same way as in previously published OGLE-III Photometric Maps, using third-order transformation based on 2MASS Catalog (Skrutskie *et al.* 2006). The details are given in Udalski *et al.* (2008a).

Table 2
OGLE-III Photometric Map of the BLG100.1 field (sample)

ID	RA (2000)	DEC (2000)	X	Y	V	V − I	I	N _V	N _V ^{bad}	σ _V	N _I	N _I ^{bad}	σ _I
1	17 ^h 51 ^m 01 ^s 01	−30° 16′ 16″.9	389.87	17.04	19.583	5.371	14.212	6	0	0.049	1330	0	0.053
2	17 ^h 51 ^m 01 ^s 20	−30° 15′ 39″.4	533.88	27.13	15.919	1.969	13.950	7	0	0.007	1547	4	0.015
3	17 ^h 51 ^m 01 ^s 60	−30° 16′ 17″.5	387.42	46.62	13.684	0.824	12.860	6	1	0.002	1849	1	0.018
4	17 ^h 51 ^m 01 ^s 73	−30° 16′ 07″.6	425.45	52.99	15.017	1.100	13.916	7	0	0.006	1915	0	0.014
5	17 ^h 51 ^m 02 ^s 25	−30° 16′ 15″.0	396.82	78.91	99.999	9.999	14.807	0	0	9.999	1381	0	1.042
6	17 ^h 51 ^m 02 ^s 39	−30° 17′ 29″.8	109.36	84.93	13.512	0.761	12.751	8	0	0.005	2147	0	0.017
7	17 ^h 51 ^m 02 ^s 47	−30° 15′ 45″.5	510.54	89.89	14.610	1.132	13.479	8	0	0.002	2192	3	0.013
8	17 ^h 51 ^m 03 ^s 11	−30° 16′ 33″.5	325.87	121.45	17.709	3.546	14.162	8	0	0.022	2307	0	0.013
9	17 ^h 51 ^m 03 ^s 79	−30° 16′ 57″.0	235.10	154.61	17.066	3.359	13.708	8	0	0.007	2373	1	0.009
10	17 ^h 51 ^m 03 ^s 93	−30° 17′ 05″.3	203.24	161.44	19.237	5.418	13.818	8	0	0.065	2380	0	0.081
11	17 ^h 51 ^m 04 ^s 71	−30° 16′ 18″.6	382.82	201.19	19.248	4.728	14.520	8	0	0.048	2386	0	0.015
12	17 ^h 51 ^m 05 ^s 13	−30° 16′ 10″.9	412.40	222.06	18.699	4.592	14.107	8	0	0.032	2385	1	0.009
13	17 ^h 51 ^m 05 ^s 47	−30° 17′ 19″.6	148.21	237.78	14.309	1.732	12.577	8	0	0.006	2382	1	0.010
14	17 ^h 51 ^m 05 ^s 98	−30° 15′ 56″.2	468.60	264.46	17.975	4.669	13.306	8	0	0.021	2387	0	0.043
15	17 ^h 51 ^m 05 ^s 99	−30° 15′ 37″.4	541.07	265.11	14.553	1.294	13.259	8	0	0.002	2382	5	0.016
16	17 ^h 51 ^m 06 ^s 13	−30° 15′ 48″.3	499.02	271.90	18.801	4.937	13.864	8	0	0.085	2387	0	0.038
17	17 ^h 51 ^m 06 ^s 21	−30° 16′ 13″.8	401.11	275.78	14.912	0.840	14.072	7	1	0.003	2387	0	0.011
18	17 ^h 51 ^m 06 ^s 34	−30° 15′ 38″.4	537.13	282.71	12.838	9.999	99.999	7	1	0.002	0	0	9.999
19	17 ^h 51 ^m 07 ^s 04	−30° 16′ 01″.1	449.83	316.87	15.199	1.144	14.055	8	0	0.004	2386	1	0.012
20	17 ^h 51 ^m 07 ^s 20	−30° 17′ 08″.7	189.55	323.89	17.192	3.975	13.216	8	0	0.069	2387	0	0.036
21	17 ^h 51 ^m 07 ^s 41	−30° 17′ 42″.2	60.59	333.81	19.002	4.809	14.193	7	1	0.022	2026	2	0.022
22	17 ^h 51 ^m 07 ^s 58	−30° 16′ 48″.5	267.43	343.34	14.695	0.929	13.766	7	1	0.003	2385	2	0.011
23	17 ^h 51 ^m 08 ^s 22	−30° 17′ 31″.7	101.15	374.20	15.878	2.986	12.892	8	0	0.008	2334	10	0.007
24	17 ^h 51 ^m 08 ^s 48	−30° 17′ 10″.0	184.32	387.71	16.824	3.591	13.233	8	0	0.009	2380	7	0.006
25	17 ^h 51 ^m 08 ^s 46	−30° 15′ 50″.3	491.17	387.61	17.876	3.721	14.155	8	0	0.016	2381	6	0.008

3.2. Improved Calibration of Red Objects

As it was mentioned above and discussed in earlier papers (Udalski *et al.* 2002), the original calibration of the OGLE-II and OGLE-III photometry was slightly inaccurate for very red or heavily reddened objects, especially in the Galactic bulge where the interstellar extinction is large. This was mainly due to the fact that the *I*-band filter used during the second and third phases of the project was different from the standard Kron-Cousins definition (Landolt 1992), exhibiting quite wide transparency “wing” into the infrared part of the spectrum. Furthermore, there are practically no standard stars with $(V - I) > 2$ mag because such red objects are usually variable. Thus, the OGLE-II and OGLE-III *I*-band filter photometry could not be calibrated precisely to the standard KC (Landolt) system for stars redder than $(V - I) > 2$ mag. Therefore extrapolated transformation coefficients derived from the observed standard stars in the $(V - I) < 2$ mag range had to be used. This may, however, lead to the systematic *I*-band deviations in the OGLE map *I*-band magnitudes, as shown in Fig. 2 of Udalski *et al.* (2002).

Since the beginning of the OGLE-IV phase in 2010, the project has been using the new, interference *V*- and *I*-band filters. OGLE-IV *I*-band filter very closely reproduces *I*-band definition adopted by Landolt (1992) in his commonly used set of standard stars – the system to which the OGLE data are ultimately tied. We may assume that the OGLE-IV *I*-band filter can be practically considered the standard one.

When the first season of OGLE-IV observations was completed, we were able to compare and recalibrate OGLE-III photometry. To this end, we cross-identified a number of constant stars in selected OGLE-III and OGLE-IV Galactic bulge fields. We chose several highly reddened fields where the photometrically stable bulge red giants and disk main sequence stars are shifted to high $(V - I)$ colors of 3–6. In this way we obtained a huge set of photometric standards with extremely large $(V - I)$.

To double-check that OGLE-IV *I*-band filter can be indeed treated as the standard one we compared OGLE-IV photometry with OGLE-III photometric maps of selected LMC fields where the vast majority of stars are bluer than $(V - I) = 1.5$ mag. We found a constant shift of magnitudes of these two datasets without any noticeable trend with the $(V - I)$ color indicating that indeed OGLE-IV *I*-band filter approximates the standard one very well.

To calibrate the OGLE-III photometry of redder objects we compared the mean magnitudes from OGLE-IV photometry and OGLE-III uncalibrated maps of the selected Galactic bulge fields. The mean magnitude difference at $(V - I) = 1.5$ mag was assumed as the zero point for a given field. In the next step we merged the data from all compared fields and derived a mean difference of OGLE-IV (standard) photometry and uncalibrated OGLE-III map magnitudes and as a function of $(V - I)$ color. A second order polynomial was fitted to this relation and used further as the calibration function (Fig. 2):

$$\Delta I = -0.033918 + 0.016361(V - I) + 0.004167(V - I)^2 \text{ [mag]}.$$

The correction value, ΔI , reaches 0.02 mag at $(V - I) = 2.15$ mag, 0.05 at 3.0, 0.1 at 4.0 and 0.2 at 6.0, respectively. We note that the correction is approximately two times smaller than predicted in Udalski *et al.* (2002).

Finally we used the derived relation for correction of I -band photometry and $(V - I)$ color (for all objects with $(V - I) > 1.5$ mag) of all OGLE-III maps including the already released maps of the LMC, SMC and Galactic disk. The computed ΔI was added to I magnitude and subtracted from $(V - I)$ color of every object in the catalog. We estimate that the corrected I -band magnitudes are accurate to 0.01–0.02 for $(V - I) < 6$ mag.

3.3. Summary and Data Presentation

The OGLE-III Photometric Maps of the Galactic bulge fields contain entries for about 340 million stars located in 267 OGLE-III fields. Figs. 3–5 show the typical accuracy of the OGLE-III Photometric Maps of these targets: standard deviation of magnitudes as a function of magnitude in the V - and I -band for the fields BLG205.2, BLG245.7 and BLG292.5 of relatively high, moderate and low stellar density, respectively.

The completeness of the photometry can be assessed from the histograms presented in Figs. 6–8 for the same fields as in Figs. 3–5. It reaches $I \approx 19$ mag and $V \approx 20.5$ mag. It is worth noting that a significant number of objects (43%) do not have V photometry. This is mainly due to the large reddening of the Galactic bulge objects which makes them undetectable on OGLE-III V frames. The small overall number of V observations is another reason.

Figs. 9–11 present color–magnitude diagrams (CMDs) constructed for a few selected subfields from different Galactic bulge fields observed by OGLE-III survey. Additionally, Fig. 12 shows the CMD of one of the most reddened OGLE-III fields, BLG179. It is located at $b = -1.7$ where the interstellar extinction starts rapidly increasing toward the Galactic plane, eventually obscuring the whole Galactic bulge background. The red giant branch and red clump in BLG179 field are, therefore, significantly smeared out and elongated toward fainter magnitudes and redder $(V - I)$. To emphasize the effect, this diagram is compiled from the data of all eight subfields.

4. Data Availability

The OGLE-III Photometric Maps of the Galactic bulge are available to the astronomical community from the OGLE Internet Archive:

<http://ogle.astrouw.edu.pl>
<ftp://ftp.astrouw.edu.pl/ogle3/maps/blg/>

The archives include the catalog tables with photometric data and astrometry for each of the subfields. The I -band reference images are also available. The usage

of the data is fully allowed for the general community. We only require the proper acknowledgment to the OGLE project.

We plan to build an online, interactive access to the photometric maps database, allowing to retrieve objects fulfilling a user-defined set of criteria. The availability of such an access will be announced on the OGLE project WWW page.

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